

Hot Springs National Park, Bathhouse Row:
Maurice Bathhouse: Mechanical & Piping Systems
One Mile North of US Highway 70
on State Highway 7
Hot Springs National Park
Garland County
Arkansas

HAER NO. AR-4-C

HAER
ARK,
26-HOSP,
3-C-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
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HISTORIC AMERICAN ENGINEERING RECORD

HAER
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HOT SPRINGS NATIONAL PARK, BATHHOUSE ROW:
MAURICE BATHHOUSE: MECHANICAL AND PIPING SYSTEMS

HAER NO. AR-4-C

Location: Hot Springs National Park, Garland County, Arkansas. One mile north of US Highway 70 on State Highway 7 (Central Avenue).

Date of Construction: 1912

Present Owner: National Park Service

Present Use: Presently vacant.

Significance: The Maurice Bathhouse is part of Bathhouse Row, which represents a typical American Spa. The spring piping, heating and ventilation systems are examples of early twentieth century state-of-the-art technology.

Historian: Diana Prideaux-Brune
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[See HAER No. AR-4 for an overview history of Bathhouse Row.]

[See HABS No. AR-28 (A through I) for documentation of the architectural features of the bathhouses on Bathhouse Row.]

Although the Maurice bathhouse was advertised as the most impressive of its time in Hot Springs, the heating and ventilation system was the least complex of any on Bathhouse Row in that the forced-air system was single zone. The radiators provided automatic variations for the differing zone requirements.

As in other systems, the Maurice was provided with two boilers working in conjunction. The Kewanee fire-tube boilers were installed in 1933, replacing the original cast iron sectional boilers. The blower, manufactured by B.F. Sturtevant, was a 60-inch diameter paddle fan drawing air through either a bank of heating coils or a by-pass. The system had no tempering coils. It appears the air was drawn from the basement, which eliminated the need for tempering outside air. The by-pass was adjusted by two dampers, which regulated the mixture of cool and heated air going into the plenum. A thermostat in the plenum controlled the draft regulator and by-pass dampers. There is no remaining evidence of the draft regulator or its connections to either the dampers or thermostat. However, automatic by-pass dampers were proposed, and a change to a manual system seems unlikely.

Air from the plenum was drawn through the fan and forced directly into the flues, which were manually regulated by balancing dampers. The only zone controls in the forced-air system were therefore manual; which regulated the air volume to each of the ducts. There is no evidence of any return air system; all venting ducts appear to be directed to the roof.

Thermostats in various zones of the Maurice controlled the steam flow to the radiators. As the forced-air temperature remained constant for the entire building, variations in temperature for different zones was provided by the direct radiation system.

The thermostat within the plenum appears to be what was termed a "graduated action" thermostat, manufactured by the Johnson Controls Company. The thermostats in each zone were examples of Johnson pneumatic thermostats with what appear to be "Office and School" thermostat covers.¹ As expected, the thermostats were located in zones defined by the functions of the building. Pack rooms, bath halls, cooling rooms and dressing rooms all were provided with thermostats. The massage and pack rooms were provided with a number of radiators, while the cooling and bathing rooms were heated by air.

Most of the radiators in the Maurice were cast iron with rococo patterns mounted on floor, ceiling, or walls.² In the men's bath hall, the air registers were concealed with marble and screen cases.

On the first floor in the men's pack room, and bath hall, gas heaters and duct work were installed in the 1950s, during the decline in bathing demand. The large heating unit completely occupied one of the shower areas.

¹ Johnson Service Company, "The Last Word in Temperature Regulation--" 1913-1915 promotional material.

² In 1935, the ceiling radiators in the men's bath hall were moved to the side walls on either end.

MECHANICAL EQUIPMENT INVENTORY

BOILERS:

Two steel fire-tube boilers installed in 1933, brick lined and asbestos covered. The boilers appear to have been coal burning originally, but since have used both oil and gas. Steam pressure is regulated by a McDonnell boiler water control added to the system in the late 1930s. The boilers supply steam to the heating coils in the hot-air system, as well as steam to the direct radiant heat system.

Kewanee Boiler Corporation, Kewanee, IL
Type O
Patent #: 1,702,545; 1,171,028; 1,745,945; others pending
McDonnell and Miller #47 boiler water control
25 lbs. maximum pressure
patent #: 1,934,486; 1,997,785; 19558
large-area spring-closing blow off valve
Cutler-Hammer boiler switch

CONDENSATE RETURN:

A vacuum pump system is in the boiler pit. Any manufacturer markings have been obscured.

BLOWER:

The blower chamber and plenum are constructed of sheet metal on a concrete foundation. Tempered and heated air is directed by sheet-metal dividers within the blower chamber and plenum. The blower forces heated air to the various zones of the building.

B.F. Sturtevant, Boston, MA
General Electric induction motor
Model #: 1630
Type KT: 302 4 25 1800
Serial #: 2550216
25 HP, 60 cycle, 3 phase, 220 volt
Patent: July 4, 1916

TEMPERATURE CONTROL:

The pneumatic thermostats control the direct radiant heating system, and the automatic dampers below the tempering coils.

Johnson Control Systems

RADIATORS:

A single pipe is used to both supply the radiators with steam, and return the condensate to the vacuum pump.

American Radiator Corp.

LAUNDRY:

Washing Machines
Huebsch Manufacturing Co.
"Auto-Trol"

Dryers:
W.M. Cissell Manufacturing Co.
Tumbler 36 x 30
Model #: L3630
Serial #: 2216

Spinners:
Pellerin Milnor Co.

ELEVATORS:

Otis Elevator Co.
serial #: 119604, 119605
60 cycle, 3 phase, 220 volt
7.5 HP electric motor
Serial #: 156296

THERMAL WATER FLOW METER: Hays-Cochrane flow meter

[See HAER No. AR-4 for bibliography.]